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Patent and Trademark Office
Washington, D.C. 20231



Fax Cover Sheet

DATE: November 12, 2004 **TIME:** 3:16 PM **FAX:** (571) 273 – 1507

TO: BURGESS & BEREZNAK **ATT:** BRADLEY J. BEREZNAK ESQ

FROM: Lou Falasco **PHONE:** (571) 272 – 1507

RE: SN 09/816601

Most recent Office Action

Number of pages including cover sheet: 8

Message

Thank you for your call and speaking with Mr. *D.S. Nakarani* - acting SPE Art Unit 1773
Phone: (571) 272-1512

Attached is the Office Action of 01/15/04

PAPERS RECEIVED

Applicants' amendment received 10/08/03 is acknowledged as paper 10.

CLAIMS

Claims under consideration are 1 - 9, 11 and 21 to 25.

The election of the previous Office action is acknowledged as having been made without traverse.

ACTIONS

Statutory basis

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Rejections

Applicant's arguments filed 10/08/03 have been fully considered but they are moot in view of the new ground of rejection in this action.

Claims 1, 3 - 9, 11, 21, 24 and 25 are rejected under 35 USC 103 over **Fluke et al** (US 6313973 copy submitted by applicants) or **Gill** (US 6271997 copy submitted by applicants) either one taken with either **Kawawake et al** (US 2001/0046110) or **Sakakima et al** (US 6567246).

Fluke et al or **Gill** teach the basic requirements of the spin valve of the claims including a spin-valve type magnetoresistance sensor with a free ferromagnetic layer; a pinned ferromagnetic layer; a non-magnetic spacer layer which is sandwiched between the free ferromagnetic layer and the pinned ferromagnetic layer; an anti-ferromagnetic layer which is disposed adjacent to the pinned ferromagnetic layer; a non-magnetic back layer which is disposed adjacent to the free ferromagnetic layer and which is stacked on the opposite side of the free ferromagnetic layer from the non-magnetic spacer layer – see Fig. 6 and 7 and Cu layer 6 of **Fluke et al** or see Fig 12 and Cu layer 210 of **Gill**. Neither **Fluke et al** nor **Gill** teach a reflective layer or a reflective layer of a metallic oxide. However either of **Kawawake et al** and **Sakakima et al** teach the inclusion of an electron-reflective layer which is disposed adjacent to the back layer stacked on an opposed side from the free ferromagnetic layer see layer 9-1 in Fig 5 of **Kawawake et al** or see reflective layer 6 in Fig 2 of **Sakakima et al**. As to the limitation of an oxide **Kawawake et al** [paragraph 00116] and **Sakakima et al** (film 6 in Fig. 2 col. 9 lns 9 and 32) both suggest an oxide layer over the reflective layer, and so are considered part of the reflective layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the reflective layer with oxide such as shown by **Kawawake et al** or **Sakakima et al** in spin-valve type magnetoresistance sensors of the **Fluke et al** or **Gill** primary references for the purpose of increasing efficiency of the spin-valve and have an oxide to provide increase wear protection. One skilled in the art

would have been motivated to adopt **Sakakima et al** and **Kawawake et al** with the expectation of protecting the element with the oxide layer and further increasing the density and responsiveness of the recording media as evident from the MR ratio increase of the spin-valve (col. 9 ln 13 of **Sakakima et al** and last sentence of paragraph [00116] of **Kawawake et al**).

Claims 2, 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2, 22 and 23 specifically call for tantalum oxide film and there is no suggestion of adopting a tantalum oxide layer in place to be a reflective layer.

Kamiguchi et al (US 6348274) is cited as an example of tantalum oxide film formed on tantalum however the **Kamiguchi et al** structure tantalum oxide layer could not, in the view of the examiner, would not be obvious to adapt as a reflective layer nor using the teachings of **Kamiguchi et al** result in a successful electron reflection layer since the only suggestion is for placement as a protective layer on the exterior of the element, further more no suggestion was found in the cited art to use a tantalum film with tantalum oxide as a metallic and metallic oxide layer for the reflective layer in the art.

CONCLUSION

The claims are 1 – 9, 11 and 21 to 25.


- Claims 1, 3 – 9, 11, 21, 24 and 25 have been rejected.
- Claims 2, 22 and 23 have been objected to as dependent on rejected claims
- Information Disclosure Statement has been received.

INQUIRES

Any inquiry concerning this communication from the examiner should be directed to examiner Louis Falasco whose telephone number is (703)305-6974 or (571)272-1507. The examiner can normally be reached M-F 9:30 AM – 6:00 PM.

- If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Paul Thibodeau may be reached at (703)308-2367 or (571)272-1516.
- The Fax phone numbers for the organization where this application or proceeding is assigned are: 703.872-9310 for regular communications and 703.872-9311 for After Final communications.
- An inquiry of a general nature or relating to status of this application or proceeding should be directed to the TC 1700 receptionist whose telephone number is 703.308-0651.

LF
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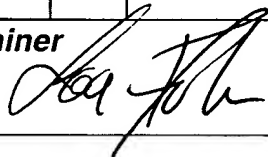

STEVAN A. RESAN
PRIMARY EXAMINER

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|---|--|--|--|---|--|----------------------------------|--|
| Form PTO-1449 (Modified) | | | | Atty Docket No.: 073600.P029 | | Serial No.: 09/816,601 | |
| List of Patents and Publications (Statement) (Use several sheets if necessary) | | | | Applicants: Ueno, et al. Filing Date: March 23, 2001 | | | |

| REFERENCE DESIGNATION | | | | U.S. PATENT DOCUMENTS | | | |
|-----------------------|----------|-----------------|------------------|-----------------------|-----------|-------------|--|
| Exam. Initial | Date | Document Number | Name | Class | Sub-Class | Filing Date | |
| <i>h</i> | 08/07/01 | 6,271,997 | Gill et al. | 360 | 324.1 | | |
| <i>h</i> | 11/06/01 | 6,313,973 | Fuke et al. | 360 | 324.1 | | |
| <i>h</i> | 03/13/01 | 6,201,673 | Rottmayer et al. | 360 | 324.12 | | |
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| FOREIGN PATENT DOCUMENTS | | | | | | | |
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| No. | Document No. | Date | Country | Name | Class | Sub-Class | Trans-lation |
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| OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.) | | |
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| Examiner  | Date Considered 12/03 |
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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OCT 09 2001

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